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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/716,346	11/18/2003	Ming Zheng	CL2221USNA	7632
23906	7590	07/21/2005	EXAMINER	
E I DU PONT DE NEMOURS AND COMPANY LEGAL PATENT RECORDS CENTER BARLEY MILL PLAZA 25/1128 4417 LANCASTER PIKE WILMINGTON, DE 19805			FORMAN, BETTY J	
			ART UNIT	PAPER NUMBER
			1634	
DATE MAILED: 07/21/2005				

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No.	Applicant(s)	
	10/716,346	ZHENG ET AL.	
	Examiner	Art Unit	
	BJ Forman	1634	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 19 May 2005.
- 2a) This action is FINAL.                    2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1-27 is/are pending in the application.
- 4a) Of the above claim(s) 1-20 is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 21-27 is/are rejected.
- 7) Claim(s) \_\_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All    b) Some \* c) None of:
1. Certified copies of the priority documents have been received.
2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- 1) Notice of References Cited (PTO-892)
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) Notice of Informal Patent Application (PTO-152)
- 6) Other: \_\_\_\_\_

**FINAL ACTION**

***Status of the Claims***

1. This action is in response to papers filed 19 May 2005 in which claims 21 and 22 were amended. All of the amendments have been thoroughly reviewed and entered. The previous objection to the specification and rejections under 35 U.S.C. 112, second paragraph and under 35 U.S.C. 102 and 103 are withdrawn in view of the amendments. The previous rejection under obviousness-type double patenting is maintained.

Applicant's arguments have been thoroughly reviewed but are deemed moot in view of the amendments, withdrawn rejections and new grounds for rejection. New grounds for rejection, necessitated by amendment, are discussed.

Claims 21-27 are under prosecution.

***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 21-24 and 27 are rejected under 35 U.S.C. 102(b) as being anticipated by Guo et al (Advanced Materials, 1998, 10(9): 701-703).

Regarding Claim 21, Guo et al discloses a complex comprising a carbon nanotube bound to a nucleic acid molecule by non-covalent means (page 701, last paragraph).

Regarding Claim 22, Guo et al disclose the complex wherein the nucleic acid is DNA (page 701, last paragraph, lines 6-10).

Regarding Claim 23, Guo et al disclose the complex wherein the nucleic acid is substantially isolated from nature (page 701, last paragraph, lines 6-10).

Regarding Claim 24, Guo et al disclose the complex wherein the nucleic acid is between 10 and 1000 bases (page 701, last paragraph, lines 6-10).

Regarding Claim 27, Guo et al disclose the complex wherein the nucleic acid is metallized i.e. platinated (page 701, last paragraph, lines 6-10).

4. Claims 21-27 are rejected under 35 U.S.C. 102(b) as being anticipated by Massey et al (U.S. Patent No. 5,866,434, issued 2 February 1999).

Regarding Claim 21, Massey et al discloses a complex comprising a carbon nanotube bound to a nucleic acid molecule by non-covalent means i.e. biotinylated DNA is bound avidin adsorbed onto the nanotube (Column 40, lines 41-50).

Regarding Claim 22, Massey et al disclose the complex wherein the nucleic acid is DNA (Column 40, line 47).

Regarding Claim 23, Massey et al disclose the complex wherein the nucleic acid is substantially isolated from nature (Column 40, lines 41-50).

Regarding Claim 24, Massey et al disclose the complex wherein the nucleic acid is between 10 and 1000 bases (Example 6, Column 45, lines 18-20 and Fig. 4).

Regarding Claim 25, Massey et al disclose the complex wherein the nucleic acid is functionalized with a member of a binding pair i.e. biotin (Example 6, Column 45, lines 18-20 and Fig. 4).

Regarding Claim 26, Massey et al disclose the complex wherein the binding pairs are streptavidin/biotin (Column 40, lines 45-46; Example 6, Column 45, lines 18-20; and Fig. 4).

Regarding Claim 27, Massey et al disclose the complex wherein the nucleic acid is metallized i.e. via hybridization with Ru(bpy)<sub>3</sub><sup>2+</sup> tag (Column 40, lines 47-50; Example 6, Column 45, lines 18-20; and Fig. 4).

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5. Claims 21-25 and 27 are rejected under 35 U.S.C. 102(b) as being anticipated by Tsang et al (Angew. Chem. Int. 1997, 36 (20): 2198-2200).

Regarding Claim 21, Tsang et al discloses a complex comprising a carbon nanotube bound to a nucleic acid molecule by non-covalent means i.e. adsorbed DNA (page 2199 and Fig. 3).

Regarding Claim 22, Tsang et al disclose the complex wherein the nucleic acid is DNA (page 2198, right column).

Regarding Claim 23, Tsang et al disclose the complex wherein the nucleic acid is substantially isolated from nature (page 2198, right column).

Regarding Claim 24, Tsang et al disclose the complex wherein the nucleic acid is between 10 and 1000 bases (page 2198, right column, line 2).

Regarding Claim 25, Tsang et al disclose the complex wherein the nucleic acid is functionalized with a member of a binding pair i.e. the DNA comprises a sequence having a complementary binding partner (page 2198, right column).

Regarding Claim 27, Tsang et al disclose the complex wherein the nucleic acid is metallized i.e. platinated (page 2198, right column).

### ***Double Patenting***

#### *Reiterated from previous action*

6. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

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Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

7. Claims 21-23 and 25-27 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 14 and 19 of copending Application No. 10/716,347. Although the conflicting claims are not identical, they are not patentably distinct from each other because both sets of claims are drawn to carbon nanotube-nucleic acid complexes and differ only in the '347 complexes are defined by the process of making. However, both claim sets define the same product as defined by their structures. Therefore, the products are not patentably distinct.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

**Response to Applicant**

8. Applicant has not provided any arguments regarding the above obviousness-type double patenting rejection. Therefore, the rejection is made final.

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

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### **Conclusion**

10. **No claim is allowed.**
11. **Any inquiry concerning this communication or earlier communications from the examiner should be directed to BJ Forman whose telephone number is (571) 272-0741. The examiner can normally be reached on 6:00 TO 3:30.**

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gary Jones can be reached on (571) 272-0745. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to (571) 272-0547.

Patent applicants with problems or questions regarding electronic images that can be viewed in the Patent Application Information Retrieval system (PAIR) can now contact the USPTO's Patent Electronic Business Center (Patent EBC) for assistance. Representatives are available to answer your questions daily from 6 am to midnight (EST). The toll free number is (866) 217-9197. When calling please have your application serial or patent number, the type of document you are having an image problem with, the number of pages and the specific nature of the problem. The Patent Electronic Business Center will notify applicants of the resolution of the problem within 5-7 business days. Applicants can also check PAIR to confirm that the problem has been corrected. The USPTO's Patent Electronic Business Center is a complete service center supporting all patent business on the Internet. The USPTO's PAIR system provides Internet-based access to patent application status and history information. It also enables applicants to view the scanned images of their own application file folder(s) as well as general patent information available to the public.

For all other customer support, please call the USPTO Call Center (UCC) at 800-786-9199.

*W*  
BJ Forman, Ph.D.  
Primary Examiner  
Art Unit: 1634  
July 14, 2005